APPENDIX C
Presenting Statistical Data

Statistical data can be depicted in a frequency distribution table. This data can be prepared in a logical order, condensed and simplified, and essential details can be retained.

Three steps are required in construction of a frequency distribution table.

- Step 1. The collection of raw data. The graphic illustrates raw data on the number of offenses per month for different age classes from 17 to 38. Data arranged in this manner make it difficult to determine which age class has the highest total number of offenses for the year.

- Step 2. This step involves totaling the items in each class and arranging them in order of magnitude. Such an arrangement (whether ascending or descending) is called an array. This graphic shows an array with yearly total offenses for each age listed in descending order. The range of total offenses is from 220 to 10 with a concentration of offenses in the younger age classes and comparatively few offenses in the older age classes.

- Step 3. Finally, in preparing a frequency distribution table, classes are combined into class intervals or groups. In this graphic two-year class intervals have been used making it easier to see a large concentration. (The largest concentration is 423 or the 19-20 age interval.) Other data suitable for frequency distribution tables include—

  - Accident frequencies.

  - Accident fatalities or injuries.

  - Offenses by categories; that is, assaults, robberies, and so forth.

Data taken from a frequency distribution table can then be depicted in a chart or graph. A vertical or horizontal bar chart may be used to depict the information. Or a circle graph or pie chart may be used. A pin map chart is another way to graphically present the data.

STEP 1		STEP 2	
AGE	OFFENSES	AGE	OFFENSES
19	220	17	69
20	203	18	76
21	158	19	220
22	141	20	203
18	76	21	158
24	74	22	141
23	71	23	71
17	69	24	74
26	57	25	54
25	54	26	57
27	43	27	43
29	37	28	29
30	32	29	37
31	30	30	32
28	29	31	30
33	23	32	22
32	22	33	23
34	19	34	19
36	18	35	17
35	17	36	18
37	15	37	15
38	10	38	10

STEP 3 AGE	NUMBER OF OFFENSES
17-18	145
19-20	423
21-22	299
23-24	145
25-26	111
27-28	72
29-30	69
31-32	52
33-34	42
35-36	35
37-38	25
TOTAL	1,418

CURVE CHART

The curve or line chart is probably the most widely used form of graphic presentation. It is very simple to construct and is most effective when the emphasis is on movement, rather than amount. The curve chart is normally used for data covering 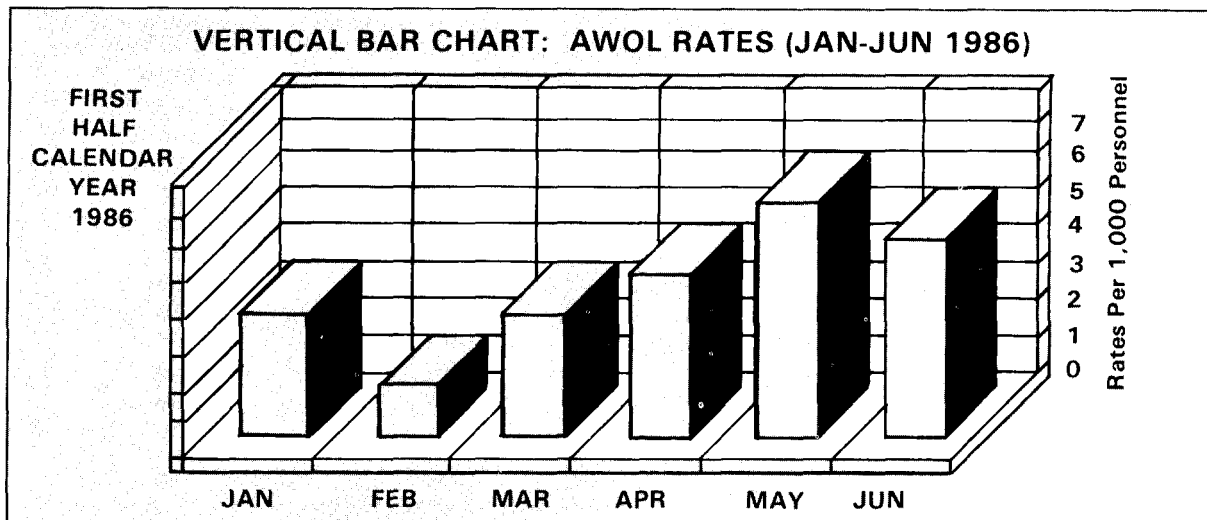a long period of time. It is also possible to compare two or more series on the same chart. The curve or line chart may be used to show trends in various enforcement activities, such as total AWOLs, vehicle registrations, offenses, apprehensions, and so forth.

CURVE CHART: TOTAL OFFENSES—1986 VS 1985

1986 ▬▬▬▬▬▬ 1985 ▨▨▨▨▨▨▨
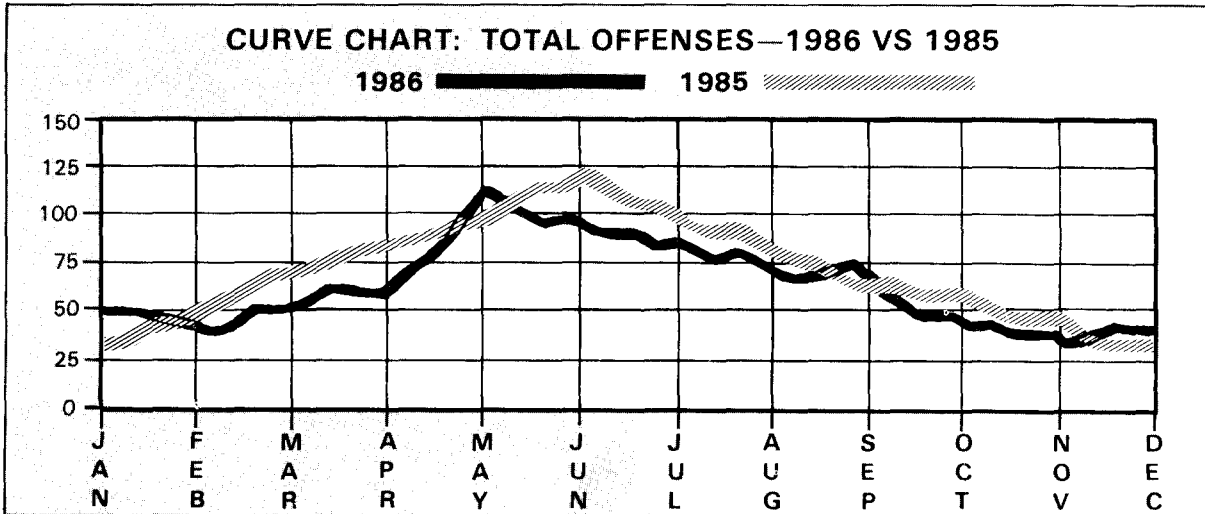
VERTICAL BAR CHART

Another chart frequently used to depict enforcement data is the vertical bar or column chart. This chart is also used to depict numerical values of a given item over a period of time. It may be used for months of the year, as shown, for days of the week, for hours of the day, or for all three. The chart is simple to construct and readily understood. The vertical bar chart is preferable to the curve chart when a sharper delineation of trend is to be shown.

VERTICAL BAR CHART: AWOL RATES (JAN-JUN 1986)

FIRST HALF CALENDAR YEAR 1986

Rates Per 1,000 Personnel

JAN   FEB   MAR   APR   MAY   JUN

HORIZONTAL BAR CHART

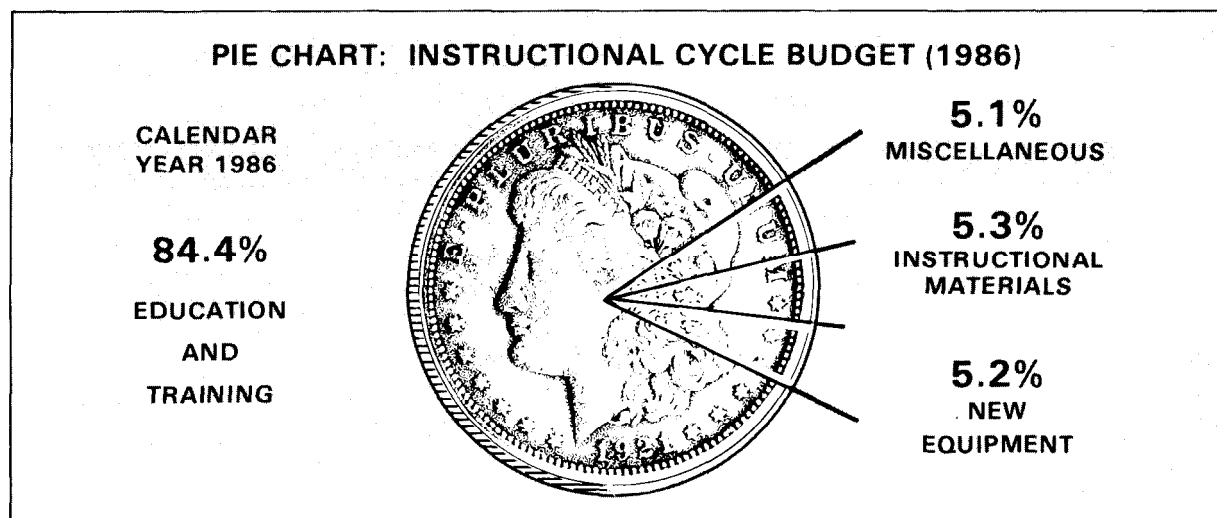The horizontal bar chart is the simplest form of graph. Its primary use is to compare different items as of a specified date. In MP work, the horizontal bar chart is used to break down offenses by units, traffic violations by specific violation over a given period and for a specified date. and similar categories.

HORIZONTAL BAR CHART: SELECTED MILITARY OFFENSES (JUL 1986)
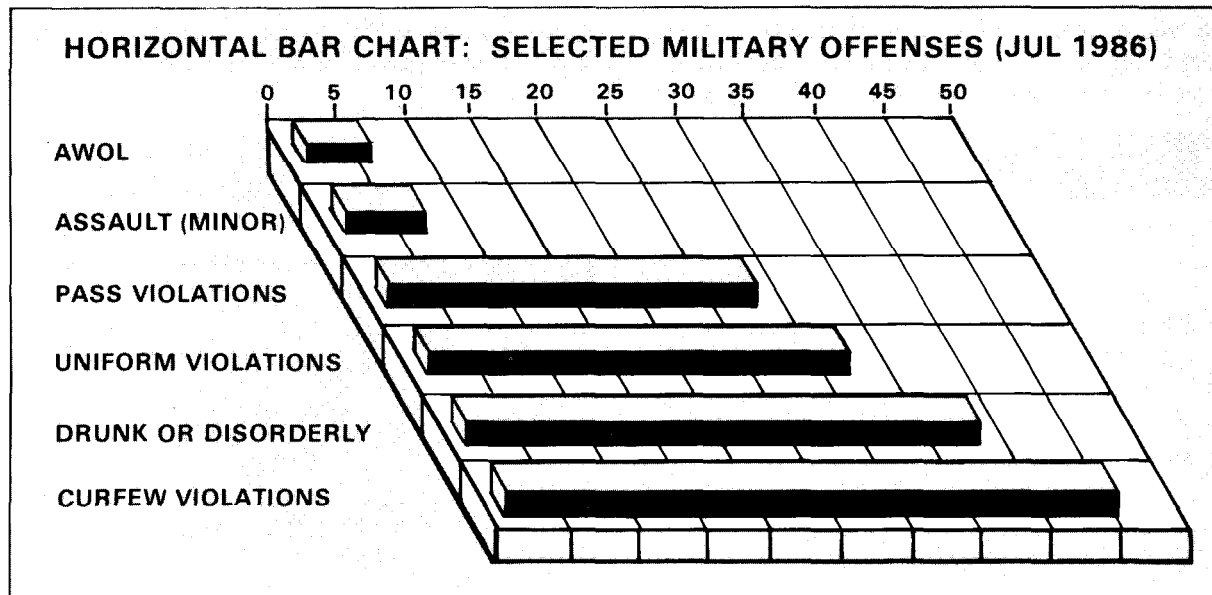
CIRCLE GRAPH OR PIE (SECTOR) CHART

The circle graph or pie (sector) chart compares various components with each other and with the whole. This chart serves to direct attention to extreme areas. The primary disadvantage of the pie chart is that where many segments are involved the chart will appear confusing. The small sections of the chart will be difficult to label in such a case. A bar chart is recommended when dealing with numerous components.

PIE CHART: INSTRUCTIONAL CYCLE BUDGET (1986)

CALENDAR YEAR 1986

84.4%

EDUCATION AND TRAINING

5.1% MISCELLANEOUS

5.3% INSTRUCTIONAL MATERIALS

5.2% NEW EQUIPMENT

PIN MAP

The pin map is another way of graphically presenting data pertaining to frequency, type, and location of accidents or incidents. This chart is also considered to be an essential element of selective enforcement planning, A map of an area is mounted on a board capable of holding pins. Locations of accidents or incidents are indicated by pins stuck into the map at the location where the incidents or accidents occurred. Different types of accidents or incidents (that is, injury, fatality) may be depicted by different colored or marked pins. The pin map may be used as a yearly record and, if photographed, may be compared with succeeding years.

PIN MAP: TRAFFIC ACCIDENT REPORTS (1986)